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10/064,724	08/09/2002	Everett Anderson	PES-0059P	4233

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EXAMINER

CANTELMO, GREGG

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 12/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/064,724

Applicant(s)

ANDERSON ET AL.

Examiner

Gregg Cantelmo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 17-21 is/are rejected.
- 7) ☒ Claim(s) 14-16 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 October 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4-7. 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Applicant's claims to domestic priority are acknowledged.

Information Disclosure Statement

2. The information disclosure statements filed September 16, 2002, October 7, 2002 and July 14, 2003 have been placed in the application file and the information referred to therein has been considered as to the merits.
3. With respect to the IDS filed October 7, 2002: Item 22 has not been considered. The cited reference is drawn to 22 pages of abstracts and it is unclear as to which of these documents are relevant. For example, it is unclear how abstracts 1, 4 and 6 are relevant.

Drawings

4. The drawings received October 7, 2002 are acceptable for examination purposes.

Specification

5. The disclosure is objected to because of the following informalities: the status of U.S. application 09/965,680 having been allowed, should be updated to the corresponding U.S. patent number and issue date. Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 9 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. patent No. 4,745,301 (Michalchik).

Michalchik discloses providing a layer 10 of mixed elastomeric and conductive materials between two metal substrates 20 (Figs. 3 and 4, col. 7, ll. 3-24 and col. 10, 11, 40-47 as applied to claim 9).

The conductive particles are carbon (col. 7, ll. 3-24 as applied to claim 13).

8. Claims 9-11 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. patent No. 3,656,027 (Isley).

Isley discloses providing a layer 15 of mixed elastomeric and conductive materials between two metal substrates 16 (Fig. 1 and paragraph bridging columns 2 and 3 as applied to claim 9).

The metal substrate materials include copper, steel, niobium, tantalum and zirconium (col. 1, ll. 67-75 as applied to claims 10 and 11).

The conductive particles are carbon (col. 1, ll. 57-66 as applied to claim 13).

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9. Claim 19 is rejected under 35 U.S.C. 102(a) as being anticipated by WO 00/39362 (WO '362).

WO '851 discloses an electrochemical cell comprising first electrode 204, second electrode 206, membrane 202, first flow field 218, second flow field 228, electrochemical cell collector plate 230 wherein the plate 230 (Fig. 2) wherein the plate has a structure in Fig. 4 comprising an electrically conductive material 430 disposed between two metal foils 460 and 470 (as applied to claim 19).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isley in view of U.S. patent No. 4,488,203 (Muranaka).

The teachings of claim 9 with respect to Isley have been discussed above and are incorporated herein.

The difference between claim 12 and Isley is that Isley does not specify the elastomeric material of claim 12.

Isley teaches of using a broad number of elastomeric materials including butyl rubbers.

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Muranaka teaches that both butyl rubber and silicon rubber materials can be used as the elastomeric component of the electrically conductive elastomeric material.

The instant application does not disclose criticality of the elastomeric materials used in the instant application apart from other known elastomeric materials.

The motivation for using silicone is that it is a known equivalent substitute for butyl rubber as an electrically conductive elastomeric material used in electrical capacitors.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of Isley by using silicone in place of butyl rubber since it is a known equivalent substitute for butyl rubber as an electrically conductive elastomeric material used in electrical capacitors. The selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945) See also *In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960). MPEP § 2144.07.

12. Claim 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isley in view of U.S. patent No. 4,488,203 (Muranaka).

The teachings of claim 9 with respect to Isley have been discussed above and are incorporated herein.

The difference between the instant claims and Isley is that Isley does not teach of the material being a form of substoichiometric titanium oxide (claims 17 and 18).

Clarke teaches that it is known to use substoichiometric titanium oxide materials in electrochemical cells (abstract, col. 4, ll. 25-29 and col. 8, ll. 10-15).

The advantage of using this material in an electrochemical cell is that it provides a material which has improved electrical conductivity and resistance to corrosion.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of Isley by selecting the compression pad material to include substoichiometric titanium oxide since it would have improved the electrical conductivity of the pad as well as improve the pad's corrosion resistance.

13. Claims 1-4, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/39362 (WO '362) in view of U.S. patent No. 5,281,496 (Clarke).

The scope of claims 1-4 and 7-8 recites a feature which was not disclosed or adequately supported by a proper disclosure under 35 U.S.C. 112 in the parent nonprovisional application, but which was first introduced or adequately supported in the continuation-in-part application such a claim is entitled only to the filing date of the continuation-in-part application; *In re Chu*, 66 F.3d 292, 36 USPQ2d 1089 (Fed. Cir. 1995); *Transco Products, Inc. v. Performance Contracting Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994); *In re Von Lagenhoven*, 458 F.2d 132, 136, 173 USPQ 426, 429 (CCPA 1972); and *Chromalloy American Corp. v. Alloy Surfaces Co., Inc.*, 339 F. Supp. 859, 874, 173 USPQ 295, 306 (D. Del. 1972). In particular the recitation of the substoichiometric oxide of titanium is not found in the priority

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application's disclosure. Therefore the effective priority date for these claims is held to be the filing date of the instant application. See MPEP § 201.11.

WO '362 discloses an electrochemical cell comprising: a first electrode 107, second electrode 103, membrane 108 disposed between and in intimate contact with the first electrode and the second electrode, a first flow field 112 in fluid communication with the first electrode 107 opposite membrane 108, a second flow field 110 in fluid communication with the second electrode 103 opposite membrane 108, a unitary, porous, electrically conductive pressure pad 118 adjacent the first flow field 112 and said first electrode 107. The electrode includes particulates, an electrically conductive material and an elastomeric support material. The electrically conductive materials can be steel, nickel, cobalt, carbon, refractory metal, precious metal or a mixture or alloy thereof (prior art claim 16, Fig. 3, page 3, line 25 through page 4, line 14 and page 6, ll. 29-31 as applied to claim 1).

The particles of the pressure pad are mixed and processed into a pad or sheet such as by sintering or casting or molding (see page 11, lines 16 through page 14, lines 11). The sheet is unitary (one piece) and thus the pressure pad produced from the particles is a unitary pad of the mixture of conductive and elastomeric materials and not a particulate pad (particulate pad would not be unitary since each of the particles would be distinct as applied to claim 2).

The elastomeric material is one of fluorosilicone, fluoroelastomer or combinations thereof (prior art claim 15 as applied to claim 3).

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Pressure pad 118 is in fluid communication with the first flow field 112 (Fig. 3 as applied to claim 4).

The difference between the instant claims and WO '362 is that WO '362 does not teach of the material being a form of substoichiometric titanium oxide (claims 1, 7 and 8).

Clarke teaches that it is known to use substoichiometric titanium oxide materials in electrochemical cells (abstract, col. 4, ll. 25-29 and col. 8, ll. 10-15).

The advantage of using this material in an electrochemical cell is that it provides a material which has improved electrical conductivity and resistance to corrosion.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of WO '362 by selecting the compression pad material to include substoichiometric titanium oxide since it would have improved the electrical conductivity of the pad as well as improve the pad's corrosion resistance.

14. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO '362 in view of Clarke as applied to claims 1 and 4 above, and further in view of U.S. patent No. 5,466,354 (Leonida '354).

The difference not yet discussed is of the porosity or void volume of the pressure pad.

Leonida '354 discloses of a compression pad used in electrochemical cells having a porosity from about 15-80 % (paragraph bridging columns 2 and 3).

The motivation for using a compression pad having a porosity as recited in instant claims 5 and 6 is that it provides a material having an elastic strain sufficient to compensate for the component dimensional variations in the cell.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of WO '362 by using a compression pad having a porosity as recited in instant claims 5 and 6 as taught by Leonida '354 since it would have provided a material having an elastic strain sufficient to compensate for the component dimensional variations in the cell.

15. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 02/27851 (WO '851) in view of Clarke.

The scope of claims 20 and 21 recites a feature which was not disclosed or adequately supported by a proper disclosure under 35 U.S.C. 112 in the parent nonprovisional application, but which was first introduced or adequately supported in the continuation-in-part application such a claim is entitled only to the filing date of the continuation-in-part application; *In re Chu*, 66 F.3d 292, 36 USPQ2d 1089 (Fed. Cir. 1995); *Transco Products, Inc. v. Performance Contracting Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994); *In re Von Lagenhoven*, 458 F.2d 132, 136, 173 USPQ 426, 429 (CCPA 1972); and *Chromalloy American Corp. v. Alloy Surfaces Co., Inc.*, 339 F. Supp. 859, 874, 173 USPQ 295, 306 (D. Del. 1972). In particular the recitation of the substoichiometric oxide of titanium is not found in the priority application's disclosure. Therefore the effective priority date for these claims is held to be the filing date of the instant application. See MPEP § 201.11.

WO '851 discloses an electrochemical cell comprising first electrode 204, second electrode 206, membrane 202, first flow field 218, second flow field 228, electrochemical cell collector plate 230 wherein the plate 230 (Fig. 2) wherein the plate has a structure in Fig. 4 comprising an electrically conductive material 430 disposed between two metal foils 460 and 470.

The difference between claims 20 and 21 and WO 851 is that WO '851 does not teach of the material 430 being substoichiometric titanium oxide.

Clarke teaches that it is known to use substoichiometric titanium oxide materials in electrochemical cells (abstract, col. 4, ll. 25-29 and col. 8, ll. 10-15).

The advantage of using this material in an electrochemical cell is that it provides a material which has improved electrical conductivity and resistance to corrosion.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of WO '851 selecting the compression pad material to include substoichiometric titanium oxide since it would have improved the electrical conductivity of the pad as well as improve the pad's corrosion resistance.

Allowable Subject Matter

16. Claims 15 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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17. The following is a statement of reasons for the indication of allowable subject matter: none of the prior art of record are considered to teach, suggest or render obvious the invention of claims 15 and 16.

Isley is drawn to electrical capacitors and there is no motivation to modify the mixture as recited in claim 15 for creating a flow field as recited therein.

While Isley disclose of the metal foil / conductive elastomer / metal foil arrangement, this arrangement is not taught to be a pressure pad and thus would not have been obvious to incorporate the teachings of Isley to that of WO '362.

Conclusion

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregg Cantelmo whose telephone number is (703) 305-0635. The examiner can normally be reached on Monday through Thursday from 8:00 a.m. to 5:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan, can be reached on (703) 308-2383. Note that these telephone numbers will change around January 1, 2004. At such time the examiners new telephone number will be (571) 272-1283 and the examiner's supervisor's number will be (571) 272-1292. FAX communications should be sent to FAX number: (703) 872-9306. FAXES received after 4 p.m. will not be processed until the following business day. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

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Gregg Cantelmo
Patent Examiner
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gc

A handwritten signature in black ink, appearing to read "Gregg Cantelmo", with a long horizontal flourish extending to the right.

November 24, 2003